

Claims:

1. Method for producing an embossing roller from silicone rubber for the continuous embossing of the surface of a thermoplastic film, with the embossing surface having a negative form of a surface structure to be embossed, in particular a grain, comprising:

a) an auxiliary roller is first produced which is made of plastic or a metallic material, at least in the region of its circumferential surface;

b) the circumferential surface is smooth;

c) a laser beam is directed onto the circumferential surface;

d) the laser beam moves relative to the circumferential surface and is controlled so as to be congruent with the particular site on the surface structure of a real pattern or of an imaginary pattern which is present in the form of data, in such a way that the surface structure of the pattern is created as a positive structure in the circumferential surface of the auxiliary roller;

e) a layer of silicone rubber of uniform thickness is poured or spread onto the positively structured circumferential surface of the auxiliary roller thus formed, and vulcanized to produce an embossing matrix, and

f) the embossing matrix is pulled from the circumferential surface of the auxiliary roller, turned inside out, and adhered to a circumferential surface of an embossing roller, with the negatively structured embossing surface facing outward.

silicone rubber of uniform thickness was poured or applied thereto,
and said surface was then cured or crosslinked to produce an
embossing matrix. This embossing matrix was pulled from the surface
of the auxiliary roller and then turned inside out and adhered to
5 the circumferential surface of an embossing roller, with its
negatively structured embossing surface facing outward. The
embossing roller could then be used directly to emboss a
thermoplastic surface under heat and pressure.

While this invention has been described as having a preferred
10 design, it is understood that it is capable of further
modifications, and uses and/or adaptations of the invention and
following in general the principle of the invention and including
such departures from the present disclosure as come within the
known or customary practice in the art to which the invention
15 pertains, and as may be applied to the central features
hereinbefore set forth, and fall within the scope of the invention
or limits of the claims appended hereto.

2. Method according to Claim 1, wherein:

a) the plastic in the region of the surface of the auxiliary roller is disposed in such a way that the silicone rubber poured or spread onto this surface may be separated from the surface of the auxiliary roller after vulcanization.

3. Method according to Claim 2, wherein:

a) the plastic is nitrile butadiene rubber (NBR).

4. Method for producing an embossing roller from silicone rubber for the continuous embossing of the surface of a thermoplastic film, with the embossing surface having a negative form of a surface structure to be embossed, in particular a grain, comprising:

a) an auxiliary roller being provided, the auxiliary surface being smooth, at least in the region of its circumferential surface;

b) a laser beam being directed onto the circumferential surface;

c) the laser beam being moved relative to the circumferential surface and being controlled so as to be congruent with the particular site on the surface structure of a real pattern or of an imaginary pattern which is present in the form of data, in such a way that the surface structure of the pattern is created as

a positive structure in the circumferential surface of the auxiliary roller;

d) a layer of silicone rubber of uniform thickness being provided on the positively structured circumferential surface of the auxiliary roller thus formed, and being vulcanized to produce an embossing matrix, and

e) the embossing matrix being pulled from the circumferential surface of the auxiliary roller, turned inside out, and adhered to a circumferential surface of an embossing roller, with the negatively structured embossing surface facing outward, thereby producing the embossing roller from silicone rubber with the negative form of a surface structure to be embossed.

5. Method according to Claim 4, wherein:

a) the smooth circumferential surface of the auxiliary roller includes a plastic disposed in such a way that the silicone rubber provided on this surface may be separated from the surface of the auxiliary roller after vulcanization.

6. Method according to Claim 5, wherein:

a) the plastic is nitrile butadiene rubber (NBR).